

## CLAIMS:

1.           Antenna diversity, comprising:
  - a first antenna element and a second antenna element, the first antenna element arranged for operating in an active mode and comprising a connection for connecting the first antenna element to a transceiver of said electronic device for transceiving electromagnetic signals and the second antenna arranged for operation in a parasitic mode by interfering the impedance of the first antenna element due to electromagnetic coupling; wherein the second antenna element in the parasitic mode is terminated by an adjustable impedance; characterized by
  - 10    -           a pre-selection unit for adjusting the adjustable impedance ensuring that the amount of a mismatch between the impedance of the antenna element in the active mode and the impedance of the transceiver is below a predetermined threshold value,
  - a selection unit for adjusting the adjustable impedance within a range determined by the pre-selection unit fulfilling a predetermined received signal quality
  - 15    criterion for the transceived electromagnetic signal best.
  
2.           Method for operating an antenna diversity, the diversity including a first and a second antenna element, the first antenna element being operated in an active mode by being connected to a transceiver for transceiving electromagnetic signals and the second antenna element being operated in a parasitic mode by interfering the impedance of the first antenna element due to electromagnetic coupling to the first antenna element; the method being characterized by the steps of:
  - adjusting the adjustable impedance ensuring that the amount of a mismatch
  - 20    between the impedance of the antenna element in the active mode and the impedance of the transceiver is below a predetermined threshold value;
  - selecting the adjustable impedance within a range determined by the pre-selection unit fulfilling a predetermined received signal quality criterion for the transceived electromagnetic signal best.

3. Method according to claim 2,  
characterized in that the method steps are repeated occasionally or after a predetermined time  
interval or after a change in the mismatch or after a change of received signal quality.

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4. Method according to claim 2 or 3,  
characterized in that the step adjusting the adjustable impedance comprises the substeps of:  
- sequentially varying the adjustable impedance of the second antenna element  
to n1 different amounts and detecting the co-ordinated amounts of mismatch between the  
10 impedance of the first antenna element and the impedance of the transceiver as well as the  
co-ordinated degree of performance of the signal quality criterion for the electromagnetic  
signal transceived by the first antenna element.

5. Integrated circuit comprising:

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a transceiver (160) and;

a first input for connecting a first antenna element to transceiver (160) for  
transceiving electromagnetic signals and;

a second input for connecting a second antenna arranged for operation in a  
parasitic mode by interfering the impedance of the first antenna element due to

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electromagnetic coupling;

an adjustable impedance (170b) connected to the second input for terminating  
the second antenna element (110b);

characterized in that the integrated circuit further comprises:

- a pre-selection unit (130) connected to the first input and comprising an output  
25 for adjusting the adjustable impedance (170b) where the pre-selection unit (13) is operative  
to ensure that the amount of a mismatch between the impedance of the antenna element in the  
active mode and the impedance of the transceiver (160) is below a predetermined threshold  
value,

- a selection unit (140) connected to the preselection unit (130) and to an output  
30 of the transceiver (160) providing received signal quality information, where the selection  
unit (14) is operative to adjust the adjustable impedance (170b) within a range determined by  
the pre-selection unit (130) fulfilling a predetermined received signal quality criterion for the  
transceived electromagnetic signal best.